Abstracts

A Rigorous and Efficient Method of Moments Solution for Curved Waveguide Bends

A. Weisshaar, S.M. Goodnick and V.K. Tripathi. "A Rigorous and Efficient Method of Moments Solution for Curved Waveguide Bends." 1992 Transactions on Microwave Theory and Techniques 40.12 (Dec. 1992 [T-MTT] (1992 Symposium Issue)): 2200-2206.

An accurate and computationally efficient method of moments solution together with a mode-matching technique for the analysis of curved bends in a general parallel-plate waveguide is presented. In order to exemplify the techniques, the method is applied to study the transmission characteristics of single and cascaded curved E- and H-plane bends in a rectangular waveguide. It is shown that the effect of the orientation of cascaded bends on the transmission properties can be significant, and examples to demonstrate this effect are included. Results of the convergence with increasing number of expansion functions illustrate that only a few terms need to be considered for accurate evaluation of the transmission characteristics of structures having single and multiple bends. Comparison with measurements for single and cascaded curved H-plane bends in a WR-90 waveguide show good agreement with the predicted result.

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